THE UNIVERSITY OF WASHINGTON

Arboretum bulletin

SUMMER

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COVER PHOTO:

Cydonia oblonga

PHOTO BY: MARJORIE BAIRD

Whitebark Pine

Pinus albicaulis Engelm

C. Frank Brockman

High country travelers in the West find a kindred spirit in this tree. One of the highlights of the Hudsonian and lower Arctic alpine region, at timberline, it is a common associate of such other rugged tree-individualists as subalpine fir, mountain hemlock, subalpine larch and, occasionally, Engelmann spruce. Perhaps the most accessible place where one may observe it is in the Yakima Park or Sunrise section of Mount Rainier National Park (6,400 ft.) which can be reached in summer by a modern highway. However, it is widely dispersed in many alpine sections of western United States. It is common from British Columbia south along the Cascades into the Siskiyous and the Sierra Nevada of California, as well as in the Rockies from British Columbia and Alberta south into Idaho, western Montana and northwestern Wyoming. Isolated patches may be noted in parts of northern Utah.

Because of varying soil and climatic conditions typical of the altitudes where it grows it varies greatly in appearance. In more protected locations it may achieve a height of 50 to 75 feet and diameter of 1 to 2 feet with a straight trunk and symmetrical though bushy crown. But it is in the more exposed, inhospitable situations that it is most interesting. There each individual may be unique, depending upon the vagaries of wind and weather. Branches invariably point in the direction of the prevailing winds; in some places specimens may sprawl along the ground, prevented from achieving an upright habit by high winds whipping across the adjacent ridge, or by deep snowdrifts that form in the lee of such locations. Often, with roots anchored in cracks of rocky cliffs, it clings to precarious locations on precipitous crags. Exposed portions of branches or trunk are often bare of bark by reason of the sand blasting effect of wind-driven particles of fine rock debris or the flailing of the flexible branches against adjacent cliffs or ledges.

A member of the white pine group, this tree bears its stout, stiff needles, in bundles of fascicles of five; they are from 1 1/2 to 2 1/2 inches long and tend to be clustered near the ends of the branches. Its ovoid, purplish-brown cones are 1 1/2 to 3 inches long, with thickened scales terminating in a broad triangular point. These cones, unique among pines, disintegrate after maturity, the seeds germinating in the rotting scales. Often squirrels and such birds as the Clark nutcracker, eagerly seeking the plump seeds, aid in disintegration of these cones while still attached to the tree. These seeds are apparently wingless, since the wings remain attached to the cone scales. Bark, thin and creamy-brown is relatively smooth except at the base of larger trunks where it may be broken into numerous plate-like scales; bark of the branches is smooth and whitish-gray.

We are pleased to continue this popular series on Native Trees of the Pacific Northwest by Prof. Brockman of the University's College of Forestry. Previous issues carried:

Douglas Fir	Spring 1952
Western Red Cedar	Fall 1952
Alaska Cedar	Winter 1952
Pacific Madrone	Spring 1953
Oregon White Oak	Summer 1953
Alpine Fir	Winter 1953
Western Hemlock	Spring 1954
Bigleaf Maple	Summer 1954
Western Larch	Winter 1954
Mountain Hemlock	Spring 1955
Pacific Silver Fir	Winter 1955
Western White Pine	Spring 1956
Sitka Spruce	Winter 1956
Vine Maple	Summer 1957
Oregon Ash	Winter 1957
Golden Chinkapin	Summer 1958
Ponderosa Pine	Spring 1959
Red Alder	Summer 1959

Whitebark Pine *(Pinus albicaulis)* in Wenatchee Mountains, Washington.

Fig. 5 Photo by: B. O. Mulligan

Biological Research at the University of Washington College of Forestry

Dale W. Cole*

This is the first of three articles on biological research currently being conducted at the University of Washington. Biological research in the Department of Botany and in the College of Pharmacy will follow in later issues.

Fifteen years ago a portion of the advanced studies conducted at the University of Washington, College of Forestry began a shift from traditional forest management to basic biological research. This changing emphasis originated in the general field of forest soils and tree nutrition, for these initial studies sought to describe the various factors influencing the rate of forest growth.

Specific programs were developed to determine the nutrient requirements of various coniferous trees in the Pacific Northwest under both greenhouse and field conditions. They involved the faculties and facilities of the Botany Department as well as those of the College of Forestry. Field aspects of this study clearly demonstrated the nutritional deficiencies of Douglas fir growing on many of the glacial soils in this region; a marked nitrogen deficiency was particularly noted. The success of the original studies provided a background and a precedent that firmly established biological research at the College of Forestry.

Since that time, the facilities, faculty and graduate research programs have expanded rapidly beyond the original program of soils and nutrition into many of the other biologically related fields of forestry, such as plant physiology, genetics, and entomology and now includes the efforts of six professors, and approximately 20 graduate students.

Some of the broad areas of study now under investigation are described hereafter.

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Nutritional Requirements of the Douglas Fir

As previously mentioned, a deficiency in nitrogen has been detected in many of the forest soils of the Pacific Northwest, especially those that originate from glacial outwash material. These deficiencies have been assessed and corrected through fertilizer trials involving hundreds of permanent plots located throughout this region. These fertilizer applications demonstrated the feasibility of increasing volume growth in the older forest stands and also in increasing the quality of Christmas trees in those areas designated for their production. The growth data from these plots is presently being analyzed in order to more precisely determine the extent of the growth responses from the soils of this region, within the various tree age classes, as influenced by the level and type of fertilizer additions.

Cycling of Elements Between the Forest and Soil Systems

To understand the nutritional needs of the forest, it is necessary to understand and assess the cycle of elements between the forest and the soil systems. This has been approached in two separate ways: (1) the interception assessment of the elemental flow of some specific point in the cycle and (2) the labeling of the elemental cycle with various radioactive elements and observing the rate of passage within the various radioactive elements and observing the rate of passage within the various components of the system. These two approaches have provided a means of establishing the efficiency of elemental use by the forest. For example, it has been found that approximately 50 times more nitrogen than potassium is needed in the soil to provide

the necessary amounts of the two elements to the trees. This is due to the more rapid rate in which potassium cycles through the forest-soil system.

Forest Genetics

Present research in forest genetics is mainly concerned with the native black cottonwood, *Populus trichocarpe.* As an experimental material, cottonwood offers many advantages to the breeder: it grows fast, reproduces easily from cuttings, and all the breeding work can be done with floral branches in a greenhouse. Furthermore, it grows over an extensive range and shows many natural varieties. At the moment, three major projects are under investigation:

1) The consistency of sex expression—
Normally, cottonwood trees are either male or female. Deviations from this norm are to be expected and have actually been found. A number of such deviant trees, together with normal males and females, are studied intensively over an initial period of five years in an attempt to determine the consistency of sex expression. This is the first step in a broad study aimed at answering the question, what factors are responsible for sex expression in trees and how we might possibly control them.
2) Methodology for the induction of polyploidy—
Most plants have a chromosome number that is characteristic for the species, or even for the genus. Poplars and aspens typically have a diploid chromosome number of $2n = 38$. However, in Europe as well as on this continent, some fast growing aspens have been found that turned out to be polyploid ($2n = 57$). It seems promising to explore the production of polyploid material as an approach to increase the productivity of the native cottonwood. Studies have been initiated investigating different techniques to induce polyploidy in both vegetation and floral tissue.
3) A shortcut to inbreeding in trees—
Inbred plant material offers many insights into the genetic mechanisms responsible for particular traits. Crosses made among highly inbred lines frequently result in very desirable hybrids. Since it takes about seven generations to produce an inbred line, and since the generation time in trees is anywhere from 5-20 years, a shortcut to inbreeding would be very valuable to the tree breeder. Such a shortcut method, consisting of inducing non-fertilized egg cells to grow into embryos and subsequently duplicating their chromosome number, is being studied on a large scale. The results of this study also promise to suggest ways how to overcome certain difficulties in interspecific hybridization.

Field Studies of Photosynthesis

Infrared gas analysis studies have been made to evaluate the rate of photosynthesis under natural environmental conditions. These studies include a comparison of the photosynthetic efficiency in seedlings of west coast conifers, a detailed analysis of the daily and seasonal patterns of photosynthesis in these species, and the factors, both plant and environmental, causing variation in these patterns. Other studies include a comparison of photosynthetic patterns in different parts of the crown of a native Douglas-fir; comparisons of photosynthetic efficiency in various crown classes; effect of silvicultural treatment of photosynthetic efficiency, and effect of local weather conditions on patterns and rates of photosynthesis.

The Ecology of High Elevation Forests

A study of the high elevation vegetation of the west slope of the Cascade Mountains has been carried out for the last three summers. A series of plots was established to determine the composition and dynamics

of the natural vegetation. It was found that the diversity of physiographic sites and different silvical characteristics of the nine principal species in the area produces the complex and heterogeneous nature of the vegetation found in the high altitude subclimax forest stands. Within these elevation zones, the vegetation tends to become more uniform, eventually composed primarily of the ecologically tolerant species, Pacific silver fir, *Abies Amabilis*, and western hemlock, *Tsuga heterophylla*. It is suggested that this vegetational distribution is due primarily to two factors, (1) the extent of the snow fall and (2) the length of the growing season, which in turn results in a gradual transistion between the climax western hemlock forest at low altitudes to the climax Pacific silver fir, forest at higher altitudes.

The Growth Patterns of the Douglas Fir

The thickness of the annual growth sheath of a forest tree varies along its stem with a pattern that depends primarily on the character of the tree's crown and on the proportion of crown to clear bole. These factors in turn depend on the tree's age and its ecological status. For example, a forest-grown conifer between the juvenile stage and over-maturity, lays on an annual sheath which is thickest at some level near the middle of the crown with a decrease in thickness with distance above and below this level.

One research project at the College of Forestry addresses itself to the questions of how these patterns develop within the growing season and how they vary among the trees of a second-growth Douglas-fir stand. It is quite likely that this project will be extended to concern itself with the physiological causes and the influence of external environmental factors on the above growth patterns and their effect on log and wood quality.

Hydrologic Relationships of a Forest-Soil System

The water relationships of a forest soil system have been extensively examined in many areas of the country, especially the Southwest where water shortages exist. Until recently, there has been little information or interest regarding this relationship in the Pacific Northwest. Presently two separate areas of study related to this subject are being examined at the College of Forestry.

1) Redistribution of precipitation within the forest-soil system—

The various components of the forest soil system have been evaluated as to their role in redistributing incoming precipitation. For example, information has been compiled under various rain storm intensities in second growth Douglas Fir forests assessing the amount of water that flows down the tree stem, the amount that remains in the foliage and is eventually evaporated, and the amount that reaches the forest floor and passes into the soil profile. In addition the rate that water passes through the soil profile is measured with a recording lysimeter installation that was designed at the College of Forestry for use under forest conditions.

2) Water use by trees—

Water use by trees is being assessed three separate ways: (a) direct and continuous measurements of transpirational losses by the tree foliage, (b) changes in water flow characteristics in the soil profile induced by water use by the trees, (c), measurements of increased yields of water from the soil profile by removing the forest vegetation. By combining the information derived from the above studies it is possible to assess the conditions influencing water use and calculate the total yearly water needs of a forest stand.

Impact of Man in Forest Recreational Areas

It has long been recognized that the addition of man into a previously undisturbed

environmental system can drastically alter the vegetative composition of the system. Within the National Parks, this poses a real problem, people travel through the parks to observe the natural scenic values. However, their very presence can alter the environment that they came to observe and appreciate.

For the past three years systematic studies have been conducted in the sub-alpine areas of Mount Rainier to determine the effect of the public on the natural vegetative composition. By this examination, it has been possible to evaluate the amount of disturbance necessary to deteriorate the site. Recommendations have been made to control the movement of park visitors near the heavily visited centers and change the composition of the trail systems. At Paradise Valley where these recommendations have been put into effect, the natural vegetation has rapidly reestablished itself in spite of the ever increasing public use of the area.

Entomology

The studies in forest entomology stress the interactions existing between the insect and the host tree, especially the importance of environmental factors that make the tree attractive to the insect and susceptible to attack.

Specific studies are being conducted on the European pine shoot moth; a serious pest of pine in the Seattle area and a major threat to the western ponderosa pine forest. This insect feeds in tree buds, but is impeded by copious resin flow, which in turn may be influenced by water available for tree growth.

The most destructive insect in the Pacific Northwest is the Douglas-fir beetle. This insect feeds on the inner bark, effectively girdling the tree. Studies of the insect's olfactory response to volatile oils released by the tree suggest that poor tree vigor may result in the release of the attraction of oils.

In addition, new forest insect survey procedures are being developed in cooperation with the State Department of Natural Resources.

Behavior of Insecticides in Forest Soils

A great deal of information is known about the behavior and fate of insecticides in agricultural soils. However, there is a general lack of information in this field under forest conditions. Unfortunately, results from the agricultural studies do not always provide an index to that which can be expected in the forest soil systems. This is due mainly to the undisturbed character of the forest soil, the presence of a forest floor layer and the cycling of elements between the soil and the forest vegetation.

The College of Forestry is presently initiating a research program to describe the interactions between the soil, the forest, and the insecticides. Through this type of examinations, it is hoped to evaluate the rates in which insecticides react with and pass through the various components of the system. Recommendations can then be made concerning the detrimental and beneficial effects of insecticide treatments.

Summary

Although each of the above studies has been established and justified on its own merit, two additional roles in the overall program of the College of Forestry are also served:

1) Information is rapidly being accumulated directly pertinent to forest land management practices. This information potentially can aid in transforming forest management from its present state as an art to that of a science, a position that agriculture has enjoyed for a number of years
2) A new field of study typically described as forest ecosystem research is being established. This area of study considers the forest-soil system as being one single overall system. Thus, the understanding of either the soil or the vegetation necessitates the understanding of both and the interrelationships between them.

University Landscape—*A Brief Review*

Eric W. Hoyte*

The University of Washington is blessed with a dramatic site with views of mountains and lakes, a mild climate and a pattern of physical development which has followed a distinctive sequence. The natural scene has been used and enhanced, to a large extent, by the growth of the campus. In this period of accelerated growth when sites for buildings are becoming difficult to find, we must reassess the values inherent in the landscape of the campus.

To appreciate this landscape one needs a sense of history. The processession of structures, since the placing together of buildings first began to shape the environment of campus, has emphasized the passage of time and impressed historical forms on the landscape.

The first formal arrangement was what is known as the Fuller Oval, locating Denny and Parrington, Clark and Lewis Halls around an oval area. This shape was later incorporated in the axial lines dominant forms laid out in the Alaska Yukon Pacific Exposition Plan by the Olmstead brothers. At one stroke this plan established the essential form of the campus with Frosh Pond and Rainier Vista on the backbone of a mound whose base is defined by Stevens Way and the railroad track. This form was retained and elaborated by Bedd and Gould in their plans up to 1934 and is still much in evidence today, emphasized by the vertical features of the Drumheller fountain in Frosh Pond, as a center around which buildings and the road pivot.

The axial lines of the AYP Plan were extended by Bebb and Gould, in what we could call the Campus Gothic period, into the Arts Quadrangle. The sense of history that this space has given to the students was amply demonstrated by the occasion when the walks had to be widened and the administration was persuaded that the traditional brick should be added to rather than replaced with blacktop. As landscape architect in the office of the University Architect, it was my duty to design these walks to fit the pattern of pedestrian movements, the layout of the buildings and the demands of tradition.

The Arts Quadrangle has also been added to on another occasion. When it was found that the freeway approach to the Evergreen Point Bridge would destroy a large number of trees in front of the Museum of History and Industry, I was given the job of finding new locations for these trees, thirty or more of which were Japanese Yoshino cherry—Prunus yedoensis—all about the same size. It has always seemed to me that the Arts Quadrangle is too large a space for comfort. It is actually about the size of St. Mark's Square in Venice. So it occurred

Japanese Yoshino Cherries transplanted from the Freeway in the Arboretum to the Arts Quandrangle on the Campus.
Fig. 6 Photo by: Eric Hoyte.

*Landscape Architect, University of Washington.

to me that these flowering cherries could be used to change the spatial effect by creating a reduced central space within the quadrangle with a smaller space at the south end. The formal arrangement of these trees suggests an arcade or cloister which seems very much in keeping with the Gothic architecture. Since the trees are deciduous and flowering, there is a sequence of effects in the Quadrangle throughout the year. The open space with its bare winter scaffold bursts into bloom and slowly the cloister forms and hardens, creating two spaces and an arcade. Then with a change of color and falling leaves, the spaces dissolve into one and the cycle repeats.

The Modern Period or contemporary phase of landscape design has produced the curvilinear shapes and mound forms around McKenzie Hall and the Faculty Center, together with the landscaping of the Stadium. The Stadium used to sit like a great concrete machine with a black cowling on an earth bank until the roof was painted a blue gray to reflect Seattle skies; the concrete was painted gray-green to relate it to the hills, the earth bank was shaped and curving lines of trees were planted below to merge with and reinforce the two great spiral ramps.

As landscape architect on the University Staff I have been concerned with the coordination of landscape projects on campus. I have worked with consultant architects and landscape architects, setting landscape standards, making use of available plant material, attempting to satisfy the needs of academic courses, and trying to foresee the movements of pedestrians. Benches, with and without backs, a wood fence to screen temporary installations and a walkway light fixture have been designed to be used as standard campus furniture. The benches, fence and light fixtures were visualized objects which did not necessarily repeat the forms of the buildings but reflected them and attempted to harmonize the old and the new and accentuate the unity of campus design.

The relocated Drug Garden was also designed to fit into the existing pattern, the axial lines of the AYP Plan and the contemporary concept of spatial sequence. On investigating areas of the University which could be preserved from future construction, the strip opposite Anderson Hall on Stevens Circle seemed to offer possibilities. Besides being contiguous with the remaining portion of the garden, the strip could be kept close enough to the road to leave large building sites behind it. So in the garden (which is now practically complete) a sequence of small spaces was made within which the walkway from Frosh Pond to Health Sciences was emphasized and opened up by the moving of two sixty foot Cedrus deodara.

To see the garden one should begin at the old portion, the west end, Cascara Circle with its curious poles topped with carved monkeys, water garden and native plants, and move past the tea hedge and formal yews to the brick paved area at the Health Sciences path. From this point a hedge of box and holly with styrax japon-

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A portion of the relocated Drug Garden.

Fig. 7 Photo by: Eric Hoyte.

Two Western Trillium Variants

J. A. Witt

Thirty-five years ago we children in the Bremerton area called them "Easter Lillies" although we also knew them as trilliums. Our elders whose antecedents were largely eastern often referred to them as "wake-robins." I realize now that *Trillium ovatum* is one of the most easily recognized of all our lowland flowers. The three-parted leaves echoed by the single three-parted flower can hardly be confused with any other native plant, hence it is not surprising that even small children learn to know the trillium almost before any other wild flower. Too, it certainly is one of our showiest forest-floor plants coming so early in the spring before the ground is hidden by later, taller growth.

The Arboretum is fortunate in still having fairly large numbers of our western trillium, both native and introduced, throughout the grounds. They are quite variable in size, leaf and petal shape but all have their parts in threes; indeed the generic name *Trillium* is derived from the Latin *trilex*, "three threads" or *tres*, "three."

In April, 1961 we received a variant of the usual three-parted flower from a Mr. Du Bois who found it near Kenmore, Washington, some time previously and had brought it into his garden. It is identical to the common form in all respects except that it has neither pistil nor stamens; instead the flower is composed of whorl upon whorl of petal-like organs, some twenty-four to twenty-eight in all. Pale creamy yellow at first, they give the flowers the look of a rose bud when it opens since the "petals" overlap each other forming a smooth rounded center. As the successive whorls open, the flower then resembles a many-pointed white star. In all, this is a most attractive form, and deserves a clonal name. Henceforth, this plant and its vegetatively produced progeny will be called *Trillium ovatum* 'Kenmore' commemorating the area where it was found.

Another most attractive variant was given to us by Mrs. J. R. Atkinson in May 1963. Mrs. Atkinson reports that she found this form growing near Mukilteo "about twenty years ago" and she, like Mr. Du Bois, dug the plant and established it in her garden where it has been growing since. This plant, which she thought appropriate to name 'Tillicum,' a Chinook word for friend, has the usual whorls of three green sepals and three white petals but where

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Trillium Ovatum 'Tillicum' (Left Fig. 8).
Trillium Ovatum 'Kenmore' (Right Fig. 9).
Fig. 8-9—Photos by B. O. Mulligan

Proposed Nature Trail and Waterfront Development

Frederick M. Mann*

The possibility of creating an extension of the Arboretum along the Union Bay Waterfront north of the freeway interchange has been suggested by the City-University Arboretum Planning Committee. This proposal, if accomplished, would reclaim a remnant of the former marshland along the shore of Union Bay, after the construction of the Lake bridge traffic interchange, thus creating a waterfront park connecting the tip of Foster Island with Montlake Park near the Museum of History and Industry. This committee, composed of representatives of the City Engineering Department, City Park Department, Arboretum Foundation and the University of Washington, was created by the City of Seattle and the University to study the future of the Arboretum and make recommendations governing the expenditure of funds derived from a sale of land for freeway purposes.

The committee first recommended that before any improvements were undertaken in the Arboretum that a long range development plan be prepared to insure that suggested improvements would appropriately serve Arboretum purposes and make best possible use of remaining Arboretum land. The firm of Sasaki, Dawson, Demay, Associates, Inc., landscape architects, was employed by the Board of Regents of the University on the recommendation of the committee. This firm gave hearty endorsement to the waterfront development proposal and incorporated it in their planning work.

As can be seen in the accompanying sketch, the development would re-establish the present water ways and create an island connected to Foster Island and Montlake Park by foot bridges. The "land" would be created at virtually no cost by deposition of a timber mat composed of demolition materials from raised buildings and a final earth cover of waste earth from building excavations. This method has been used extensively on the north side of Union Bay to dike the Ravenna Disposal site in order to prevent direct contact between garbage and rubbish and the waters of Union Bay as well as to prevent lateral displacement. Obviously, no garbage or household rubbish would be used in the Arboretum project.

A large section of the marshy strip has been used for a number of years by the City Engineering Department and the Army Engineers as a dump for logs and floating debris picked up in the waters of Lake Washington and the ship canal. This present dump area would form part of the "foundation" for the proposed Arboretum extension. The addition of a heavy earth cover will drive the timber mat down, embedding it in the underlying peat layer below water level. Wood, of course, will last indefinitely under water and will form a foundation adequate to support the weight of earth trees and plantings. As soon as the initial settlement takes place, planting can be started.

In as much as construction adjacent to navigable waters must have the approval of the U. S. Army Engineers, an application has been filed with them for permission to proceed. A rather serious objection has been raised by the State Department of Natural Resources which agency has jurisdiction over state lands (in this case shorelands and established water ways). If this objection cannot be overcome, the project will not proceed. Several factors must also be considered in the coordinating the work with the construction of the R. H.

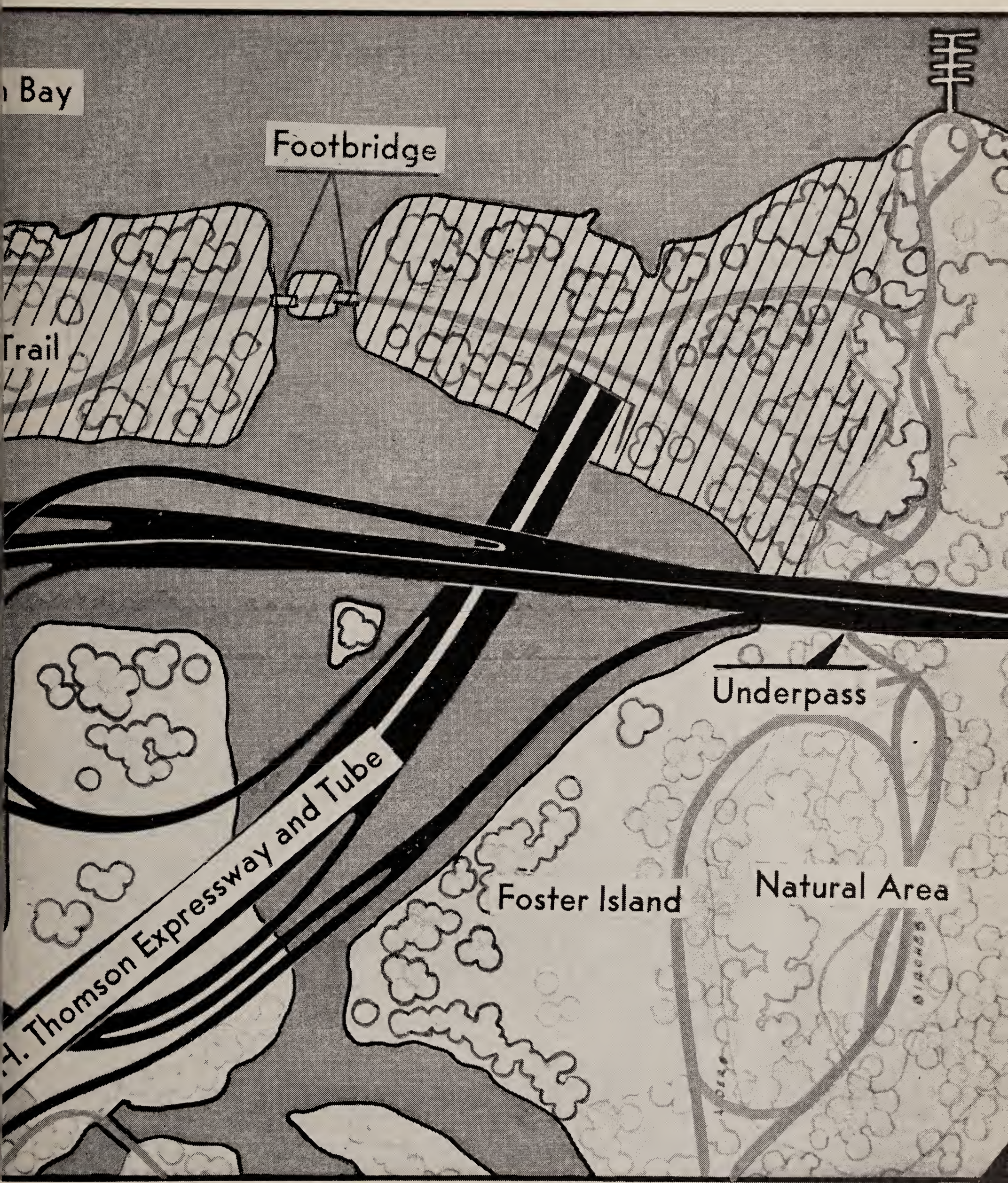
(Continued on Page 48)

*University Architect, University of Washington.

Proposed Nature Trail and Waterfront Deve

pment

Fig. 10 Photo Courtesy *The Seattle Times*



On the Bad Habits of Certain Shade Trees

Edgar Anderson*

Nearly all shade trees can be bothersome in one way or another but much of the literature about them concentrates on their good points; it is only when you have lived closely with them for a number of years that you can learn the adjustments which must be made if any particular kind is to become a close member of the family. If you know something about them before they are planted you can locate them to give the most enjoyment and the least inconvenience.

It was a New England farm wife who made me realize how really disagreeable as close neighbors some beautiful trees can be. She was living in an old square colonial farmhouse, beautifully proportioned, well preserved. Between the house and the road was a row of European lindens, small-leaved, fine twigged. With their dense symmetrical tops they were handsome summer and winter, outlined against the white house. When I came to know the family I spoke admiringly about them to the old lady. She dropped her usual reserve and said with some bitterness, "Well, if you had to live close to them as we do, you'd change your tune. It isn't only that they make a lot of litter; more of it than you'd believe is so fine it comes through the window screens. First it's the bud, then it's the flowers, and then it's that fuzz on the seeds. If it isn't one thing it's another. We have to keep the windows tight closed on the front side of the house a good deal of the summer, when we'd like to open them for the cross draft." Twenty years later after we moved into the Cleveland Avenue Gate House at the Garden I thought again and again of the old lady's remarks.

Our garage was sheltered by a basswood (Amerian linden). While it was not close enough for the finer litter to blow in through our screens, it was so near by that we had it under day-by-day observation. The old lady was right. The various objects a linden sheds are more of a continuous performance than one would have believed possible! First are the bud scales. They are large for the size of the bud and they do not all fall at once. As the leaves open and the twigs develop there is continuing litter. In early summer the flowers begin to open. They are beautiful in a quiet way and early in the morning they smell like honey but they drop petals and dried-up stamens and day after day a heavy dust of pollen. The flowers are in small clusters; only a part of a cluster sets seed, the others dry and drop off. When really hot weather sets in, many of the remaining seed balls begin to blast and shrivel, eventually to fall. There is a pretty continuous harvest of gritty little felt-covered nutlets. Then in autumn the ripe ones come down but not all at once. Each hangs by a slender stalk from a stiff green parchment bract several inches long which whirls like helicopter blades as it falls. With the help of winds they may be carried for hundreds of feet.

All of this sequence is interesting to observe. It becomes part of the recurring tide of the seasons and one takes pleasure in it but a more undiluted pleasure if there is a good stretch of lawn in between the tree and the observer's home. Basswoods and other lindens make fine lawn trees but they should be fifty feet away from the house and not immediately adjacent to a walk or driveway.

Other trees whose litter may be a problem include the following:

Magnolia grandiflora. The handsome large leathery leaves are shed a few at a time for month after month. One tree beside a small patio can be serviced efficiently but a number of them on different parts of

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*Reprinted from the Missouri Botanical Garden Bulletin, February 1965, with the kind permission of the Editor and author, Dr. Anderson.

your grounds will demand many hours of tidying in the course of a year.

Elms. The winged seeds, borne by the bushel on mature trees, are a special problem in gutters and downspouts. The wind carries them high in the air and some of the places they lodge are difficult to reach. Fortunately they bloom only in the early spring and the seed harvest is soon over.

Sycamore, *Platanus occidentalis.* As soon as a tree gets of any size it sheds its bark in strips and patches. Over and above the actual labor of disposal, many householders develop a strong emotional reaction against such innate untidiness; they get to hate sycamores. In mature specimens the fuzzy seed balls are sometimes borne in large enough numbers to present a problem.

Sweet Gum, *Liquidambar styraciflua.* The woody seed-balls are so innately handsome that they are still sometimes gilded and used for Christmas tree ornaments, as they were by early settlers. A few handfuls of them, gathered when they are still perfect in form and displayed in a wooden bowl on a library table, will be of interest and quiet beauty for several weeks. The small brown seeds which are shed from these balls, mostly before they fall, are important in the winter diet of may birds. Quail will scratch for them beneath the trees for months in autumn and early winter. Even in the city, pine siskins and other seed-eating birds will be attracted to the tree tops. Yet the seed balls are nearly the size of a golf ball and so woody that they may take over a year to decay. They are spiky enough to be unpleasant to walk on. Accumulating along a shaded pathway or in the paved areaway of a garage they are disagreeably inconvenient.

Pagoda-tree, *Sophora Japonica.* The yellowing flower petals and shiny green seed pods are little or no problem where they fall upon the grass but if a walk or driveway passes beneath the tree it may require almost daily care over a long period. The white flowers are shed almost continuously for over a month in the summer, over two months in some years, and the shiny green seed pods come down a few at a time in August and September. They get slimy and unsightly as they age and will stain a light-colored walk when tread upon.

Invading Seedlings

Some trees are a nuisance because they seed down heavily into flower beds, shrubbery groups and rose gardens. The worst are those which establish themselves so rapidly that by the time they are discovered they are too big to pull up, yet sprout back repeatedly when they are cut off.

The handsome seedlings of the Golden-rain-Tree (*Kolreuteria paniculata*) sprout so abundantly and grow so rapidly that they might become a nuisance if they are widely scattered. They are a problem only when plots of shrubbery or areas clothed with a ground cover are immediatly adjacent to the mother tree. Then the young seedlings have to be repeatedly searched for while they are still small enough to pull up easily. In the same way a female tree of white ash can be a real nuisance if it abuts directly on a large rose garden. Ash seedlings have a way of coming up in the center of the shrubbier rosebushes. Their removal can be difficult and painful.

Thicket Formation

A few trees have the capacity to develop into thickets. Sometimes this is by special stems which spread under ground and throw up new shoots. Much more rarely the roots themselves when conditions are just right can organize a young stem out of their own tisue and it grows upward to the light. Under the proper conditions these thickets may be attractive and easy to maintain. The museum building is effectively screened from the dust and noise of Tower Grove Avenue by a miniature grove of the rare native corkwood (*Leitneria floridana*). However, corkwoods would be a nuisance in most gardens and a problem in many parks. A handsome thicket of pawpaws *(Asimina triloba)* forms an exotic screen for the service drive along one side of the

(Continued on Page 46)

The Arboretum Bulletin

Vol. XXVIII, No. 1 Seattle, Wash. Spring 1965

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Phone EAst 5-4510

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SPECIAL NOTICE

To keep membership in the Arboretum Foundation in good standing, dues should be paid during the month payable. Active memberships more than three months in arrears will be dropped and The Bulletin will be discontinued.

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The Arboretum Foundation,
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Seattle, Washington

I hereby apply for membership in the Arboretum Foundation and remittance for same is enclosed to cover dues for the next succeeding 12 months.

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All memberships are non-assessable.

NOTES & COMMENT

The long-postponed additional hearing by the Seattle City Council on the route of the R. H. Thomson expressway, required by the State Supreme Court as a result of the April 1962 hearing was held in the Council Chambers on May 27 and 28, with Mr. Michael K. Copass, former King County Superior Court Judge, as examiner.

A great deal of evidence was presented by the city Engineering Department on the three possible routes, "A", "B", and "S", their exact location, construction details and costs. Two separate appraisers, one for the city, one for the University, gave evidence as to the replacement value of the land taken, a minimum of 10.5 acres for route "B", that preferred by the city and the University, almost 19 acres in the case of route "A", supported by affected home owners, and for route "S", which would pass through the Japanese Garden, nearly 33 acres; however, this includes 9.5 acres cut off to the west by the expressway.

During the afternoon and evening of the 28th a large number of expert witnesses were presented from various interested colleges, departments and office of the University, headed by President Charles E. Odegaard. All testified to the general and particular value of the Arboretum to their own interests and studies, especially in Forestry, Botany, Zoology and Landscape Architecture. Valuable supporting evidence came from Arboretum Foundation members, Mark C. Collarino, Donald G. Graham, Mrs. Henry Schmitz and Mrs. J. A. Ogle, as well as from Mr. Floyd Swink, taxonomist from the Morton Arboretum, near Chicago, who emphasized the value of having an arboretum in close proximity to a University, besides the very evident need for more land for such an extensive collection of plants.

Counsel for the home owners requested more time to examine the evidence from the Engineering Department, which was granted. A further hearing will therefore take place on June 18.

At the Annual Membership Meeting of the Arboretum Foundation held June 10, 1965, re-elected as officers were: M. C. Collarino, President, Donald K. McClure, Vice-President, Mrs. Henry Schmitz, Secretary and Jackson K. Holloway, M.D., Treasurer. New Officers were: Mrs. David Metheny and Mrs. H. F. McNiven, Vice-Presidents. New members elected to the Board of Directors were: Mrs. Hugh Baird, Robert J. Behnke, Dean James S. Bethel, Paul S. Friedlander, Harry Goodfellow, M. Chris Johnson, Mrs. H. F. McNiven, Thomas E. Moffitt, John A. Putnam, Allen Vance Salsbury, Ferdinand Schmitz and Mrs. Charles H. Hyde of Tacoma.

Paul D. Brown

Long-time members of the Arboretum Foundation will have noted with sorrow and regret the passing of Paul D. Brown in Seattle on April 4, 1965. He was appointed Superintendent of the Arboretum May 1, 1943, having previously been Superintendent of Grounds at Eastern Washington State College, and a nursery foreman in Spokane.

Under the direction of Dr. John H. Hanley and with the very small crew then available he maintained the Arboretum's plant collections, especially in the nursery, until they could be moved elsewhere when more men were hired and equipmnt obtained after the war. During the time he contributed several articles to the *Bulletin*, including a useful one on *Summer Propagation*, published in the summer issue, 1945.

On February 1, 1947 Mr. Brown resigned from his position in the Arboretum to take up gardening programs with a Seattle newspaper and radio station. Through these and his subsequent association with the Charles A. Lilly Co. and Pacific Agro Co. he became well-known to a wide circle of gardeners, nurserymen and growers of various types of plants, so that he will be missed by many persons in the Puget Sound region in the future, including the Arboretum office staff.

B. O. M.

This is your Arboretum, kept alive by your support

We are pleased to welcome the following new members (March 19 through June 2, 1965): *Contributing*—Robert J. Behnke, David J. McNett, Thomas E. Moffitt, Allen Vance Salsbury, Ferdinand Schmitz, Jr. *Sustaining*—Dr. & Mrs. H. G. Harris, Mrs. Nan Rowlands, West Sammamish Garden Club. *Annual*—Mrs. Howard E. Bayley, Mrs. Charles R. Bechtol, Mrs. Lloyd W. Bever, Mrs. Robert Blackstock, Raymond A. Brauner, Mrs. Hayden Callaham, Mrs. C. M. Chappell, Mrs. J. C. Coghlan, Mrs. Armstead Coleman, Mr. & Mrs. R. Commerford, Mrs. W. A. Culliton, Mrs. Roy Cummings, Mrs. Thomas G. Dalby, Alec DeFoor, Mrs. Charles L. Dick, Jr., Major & Mrs. Harold Ekern, Mrs. J. Morey Ferguson, Mrs. Archie H. Folden, David L. French, Mrs. Albert F. Glaser, Mrs. Colvin H. Glenn, Mrs. Donald Graham, Jr., Mrs. James W. Hearn, Mrs. James W. Higgins, Mrs. Robert A. Hobbs, Mrs. Donald Hochberg, Mrs. William H. Hunt, Mrs. Madeline Hunter, Mrs. Arthur O. Johansen, Mrs. C. S. Leede, Mrs. Thomas H. Little, Mrs. Leonard B. Lockett, Mrs. Harold P. Luiten, Mrs Philip G. Mack, Mrs. Charlotte K. Marshall, Mrs. Bruce A. Matthews, Mrs. William J. McGowan, Mrs. William L. Metzger, Mrs. Naomi H. Morgan, Mrs. Jack C. Mulliken, Mrs. Lovell L. Nelson, Mrs. Nicholas R. Padvorac, Mrs. Earl Prickitt, Mrs. James H. Ridsdale, Mrs. Harold Ritland, Mrs. William M. Sander, Mrs. Frederick Schwier, Mrs. Jack Shannon, Mrs. Charles Edward Simons, Mrs. James D. Skaggs, Mrs. David H. P. Smith, Mrs. P. C. Staples, Mrs. Freeman Stephens, Guy A. Thompson, Jr., Mrs. Robert F. Thompson, Mrs. Bob Underwood, Mrs. Newell F. Varney, Don Vaughan, Mrs. J. Orrin Vining, Mrs. J. A. Walsh, Johan B. Wenberg, M.D., Mrs. Johan B. Wenberg, Mrs. James R. Wescott, Jr., Mrs. Alvin White, Mrs. R. L. Willison, Mrs. Robert Willstadter.

We are also most grateful to the following members who have increased their dues to: *Contributing*—Herbert J. Howard, Mrs. Fred M. Roberts. *Sustaining*— Mrs. Vernon T. Gandy.

Some of Our Favorites ☆

☆ *Won't You Send Us Yours?*

Quince

—Forgotten Gem of the Orchard

Cydonia oblonga, (see cover page) of the Rose Family, is a native of Persia and Turkestan and was cultivated before the Christian era. The generic name is from the Greek, Cydon, now Canea, in Crete.

Why this charming and generous little tree has practically faded into oblivion I can't imagine! Early in the spring our tree unfolds its densely villous leaf buds. The soft pink 1 1/2 to 2 inch flowers are borne singly at the tips of the branchlets about lilac-time. Their wide-open form, satiny sheen and violet filaments conspire to bewitch you completely. The light yellow-green leaves, oval or oblong, are about 2 1/2 inch long with smooth margins. They retain their silvery soft hairs on the undersides, which remind me of the panne velvet my mother tells me was THE material of Parisian haut-couture in the early part of the century.

Quince trees reach about 25 ft. and have a rounded shape. They require a minimum of pruning and should be sprayed along with the apples. They are said to like a heavy moist clay loam, but not "wet feet." This is possibly the reason ours, in spite of utter neglect, still survives and produces over twice as long a span as the suggested 25 years.

Autumn comes and our tree decorates itself generously with heavy, hard, golden fruit, slightly pear-shaped. The overlay of gray down rubs off easily. Put a few of them in a shallow unpolished brass bowl or tray — add dull green pears, pale yellow apples and glaucous Muscat or Island Belle grapes and you have not only a Rembrandtian arrangement but a fragrance unique and tantalizing! Enjoy some quince jelly, conserve, or even a delicious liqueur!

Then the leaves turn yellow and fall unobstrusively, leaving a pleasing picture of dainty uncluttered branch pattern and smooth rut-dotted charcoal-gray bark shining in the November rain.

MARJE (MRS. HUGH) BAIRD

Western Trillium Variants

(Continued from Page 34)

there would normally next be six stamens there are six more petals. The pistil is normal, unlike that of 'Kenmore.' It seems quite probable that the two extra sets of petals represent a petaloid condition of the missing stamens. *Trillium 'Tillicum's'* white flowers resemble a nine pointed star when fully open, otherwise the plant is no different from any of the wild species growing near by.

Both clones are growing in the Arboretum and are thriving. *Trillium* 'Kenmore,' in fact, developed so vigorously that it was divided this spring and plants sent to several botanic gardens, including Strybing Arboretum, San Francisco, California, and the Royal Botanic Garden, Edinburgh, Scotland, as a precautionary measure lest we should lose our plants.

Description of both follow:

Trillium ovatum 'Kenmore' (fig. 9)

A perennial arising from a rootstock, stems about 3.5-4 dm. tall, leaves sessile to the fleshy stem, in a single whorl of three, broadly ovate to rhombic, acute. Flowers solitary, white, about 8-9 cm. across on an erect pedicel, composed of three lanceolate green sepals 4-4.5 cm long and 2.5-3 cm. broad, and numerous imbricate tepals ranging from 5 cm. long and 3 cm. broad in the outer whorl to less than 5 mm. long and broad in the center. The tepals are soft yellow when the flower first opens, change to white then a deep rose-red as they fade. Stamens and pistil absent.

Trillium ovatum 'Tillicum' (fig. 8)

As above in most respects save that the flowers have three whorls of three white tepals, the outermost 4.5-5 cm. long and 2-3 cm. broad, ovate lanceolate, the inner only slightly smaller. Stamens absent, pistil present.

BOOK REVIEWS

R. H. S. Rhododendron and Camelia Yearbook, 1965, Royal Horticultural Society, London,, 1964; price $2.50, including postage.

To give a brief resume of this last yearbook is difficult. It contains 200 pages of interesting notes, especially on rhododendrons and covers a range as comprehensive as Kipling's "English Flag." There are articles from or concerning gardens of America, France, Japan, Australia, and various parts of the British Isles.

One of the first and very interesting is by our Dr. Milton Walker, of Creswell, Oregon, relating his impressions from visits to more than thirty private gardens, plus a number of large estates, where he viewed some of the world's finest at their best. He does about as good a job as can be done with words to give the reader a share of his enjoyment, fascinating reading—and one gets a tinge of envy at his good fortune to have viewed such a continuous array of exquisite beauty.

There are four authorities who write about camellias in America (three) and Australia (one). They are well written and informative to even a novice, but since the writer grows very few camelias and is not too well versed on the subject, it would appear to be imprudent to make elaborate comment, which they undoubtedly deserve.

Exhibits at five shows, four rhododendron and one camellia, are described. Note the dates: The Rhododendron Show in London, May 5 and 6; the Rhododendron Competition, March 24 and 25; the Scottish Rhododendron Show April 14; the Truro Show in Cornwall, April 8. The prevalence of species—a very minor part of our shows—no doubt contributes to the earlier settings.

Our A.R.S. President, Edward B. Dunn, discusses American shows and activities. There are contributions by such authorities as Mr. E. H. M. Cox, General E. G. W. Harrison, K. Wada, and others whose names alone command attention in their fields, covering a wide range of problems of rhododendron culture. A visit by an Englishman to gardens in Japan is noteworthy. Added to the narrative matter are twenty-two pages of additions to the Rhododendron Registry. The R. H. S. merits an "A" for excellence on this issue. B. F. N.

Rhododendrons & Azaleas by Judith Berrisford. St. Martin's Press, New York, Price $9.50.

IT WOULD BE hard to say that there is a need for yet another book on this genus: even so this new volume is a very welcome addition. It is exceptional because of the amount of information it contains on the use of rhododendrons in creating a garden scheme.

The chapter on plant associations gives many pleasing plant combinations that will be invaluable to the do-it-yourself gardener. The warmly personal chatty style is somehow reminiscent of Gertrude Jekyll's works. It is a pleasant stroll through beautiful gardens with an expert gardener to show the way. There "the yellow catkin flowers of **Stachyurus** and **Corylopsis** strike the note of spring to be echoed by the first daffodils and **Rhododendron lutescens**". Here "one might plant the smoky Lavender 'Susan' with the cream yellow 'Carita', they usually bloom together, their foliage effect, too, is good; the dark green pointed leaves of 'Susan' complementing the fresh green rounded leaves of 'Carita'."

This same approach is developed still further in subsequent chapters where there is a full discussion of the relative merits of rhododendrons for small gardens, for rock and peat gardens, for woodland gardens and for mild climate or greenhouse cultivation. There are lists of rhododendrons recommended for each of these special uses.

Cultural information regarding exposure, soil requirements, planting, watering and shelter are clear, specific and comprehensive. One point that may be of special interest to gardeners in this area is the suggestion that rotted bracken be used in planting holes and as a mulch for both rhododendrons and azaleas. The author believes this to be superior to any other humus material for this purpose. Another 'home remedy' is the use of cold tea and tea leaves as a tonic for ailing plants. The author has "brought rhododendrons back almost from the dead solely by regular dosing with cold tea." Propagation, disease and pest control are also covered, although rather briefly.

A chronological summary of the great era of the early plant explorers and the subsequent development of the modern garden rhododendron reads like a fascinating adventure story. It is easy to imagine the excitement and the "pollen splashing" that followed the introduction of the fine species from the Himalayan expeditions. Appropriately enough, there is also a chapter on hybridizing that could easily give courage and impetus to a new crop of amateur hybridizers.

The second half of the book is a selective list of plants of outstanding beauty or easy cultivation and garden worth. This list includes both species and hybrid rhododendrons, also deciduous and evergreen azaleas. There is a paragraph describing the quality of each of these plants, their uses and cultural requirements. The appraisal of the relative merits of clonal forms is especially helpful.

Statements relative to hardiness are not reliable for the Northwest since many of the plants listed as "Coastal California only in U.S.A." are being grown successfully here. This is a minor fault and surely understandable for this book is written primarily about English gardens for English gardeners. In all other aspects it contains a great deal of interesting information for the American enthusiast. Unfortunately, the price may limit its distribution somewhat.

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A Few Oaks—Quercus

It has been conceded by many famous gardeners that probably the most valuable of all large deciduous shade trees for garden planting are to be found in the *Quercus* family—*Quercus* meaning beautiful.

To all casual appearances the Oak Trees are ageless. In the earliest English writings some one said: "In three centuries he grows, in another three he stays and in three more he decays."

"A heart of Oak" has for hundreds of years denoted courage and strength. King Arthur's round table was built of oak and today, as every one knows, oak wood is the favorite for fine furniture. In Europe it is called God's Tree.

Never having known the oaks intimately, the excitement of having full grown, well developed members of the *Quercus* family in front of my windows was a challenge to recognize each by name.

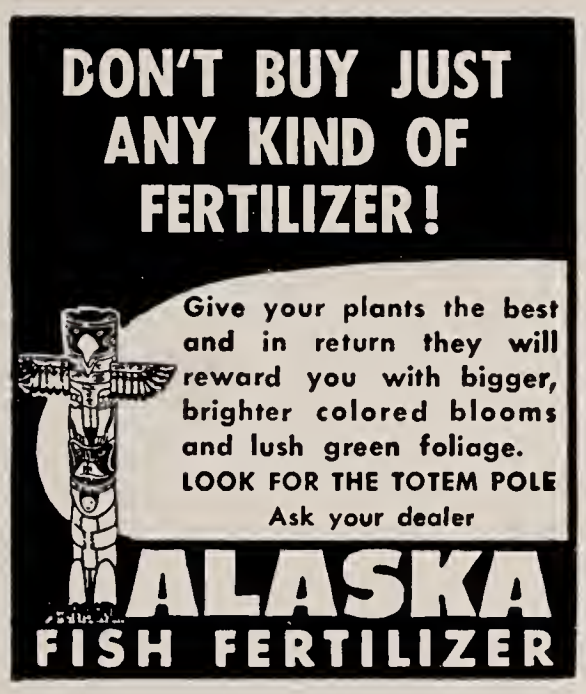
One of the oaks in front of my windows, the one that more or less dominates the group is Post Oak. During the summer season, the Post Oak forms a huge, green canopy of leaves. These leaves group themselves into flat rosettes which are caught at their centers and held by small twigs to dangle from the larger branches in the breeze.

The leaves of the Post Oak are definitely special. They may be twelve inches long, narrower at the base. The color is light green. The winter picture is one of bare, coal-black branches which reach far out horizontally and droop at the center tips. This interesting line drawing may be glimpsed in the summer.

We have two Black Oak trees, the tree I remember knowing when I was a young girl in Michigan. It is a staunch tree lifting its foliage well above the soil, to form a well-rounded head. Trees of the Black Oak have been found to live from 200 to 300 years. The leaves have rounded lobes with needles at the tips.

Between these two Black Oaks is a Pin Oak that has a great personality. It will grow from 80 to 100 feet high, slender and graceful, with the leaves clustered in a pyramidal form at the top. The leaves are small, shiny bronze in color, 3 to 5 inches in length with many lobes each having a tiny needle at its tip. I doubt if there is any ornamental tree that can equal the striking beauty of the Pin Oak.

GRACE DOWLING



University Landscape-
A Brief Review

(Continued from Page 33)

ica and hawthorn trees separates the garden from the road. A reflecting pool with benches and an area of brick form a focal point from which one progresses through a long space, with crape myrtle and enkianthus, past a great sequoiadendron giganteum to a larger area, punctuated by a Cercidiphyllum sinense. Finally, the path opens into the great breadth of Rainier Vista.

The relocated garden will not be complete for a year or two. Plants will be arranged in related groups to give some order to the immense variety of plants with medicinal significance, the background shrubs will mature and be filled out with additions. However, in a few weeks time the Drug Garden at the University of Washington should be a place of interest adding to the historical background of the University.

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On Bad Habits of Certain Shade Trees

(Continued from Page 39)

grass plot south of Mr. Shaw's old country home. It is readily kept within bounds and withstands the wear and tear of being adjacent to one of the main study areas of the Children's Summer Program.

White Poplar *(Populus alba).* These European trees are attractive as young saplings because of the velvety white felting on the under sides of the leaves. As the tree ages it is increasingly prone to form scattered thickets of root sprouts over a wide area. These are usually unsightly and difficult to control. This is now widely enough known so that the white poplar is no longer as frequently planted as is used to be.

Tree-of-heaven *(Ailanthus altissima).* Its rapid growth and ability to root sprout make difficult the eradication of seedlings only a few months old. Removing an old tree freqently results in extensive thickets which are expensive and difficult to eliminate even with patience and the skilled use of herbicides. Yet it can withsand neglect and abuse and polluted air and still be a thing of beauty. To hundreds of thousands in city slums it offers the only available shade.

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Unsightly in Old Age

Many kinds of trees become increasingly handsome as they age, though most of them become more difficult (and more expensive) to maintain. A few kinds of trees get uglier as they get older. The Siberian elm ("Chinese elm," *Ulmus pumila*) though handsome when it leaves the nursery becomes increasingly unsightly and broken down as it ages. Since for many new homes "Chinese elms" are the only available shade, plans should be made to replace them as soon as possible with something more suitable.

Hemlock *(Tsuga canadensis).* North and east from St. Louis our common hemlock can age into a picturesquely beautiful tree. St. Louis is too far south and west for the hemlock to be satisfactory as a mature tree. The little hemlock you bring home from the nursery, with reasonable care, will be lovely summer and winter, for ten to twenty years. When it gets to bearing its tiny cones and is beginning to look really treelike, it comes under increasing tension with the climate. How long it can be kept attractive will depend upon the care it is given and the site. It wants partial shade, protection from drying winds, a north slope if possible and faithful watering during the periods of drought. It is also intolerant of air pollution. When it begins to look ratty it is wise to replace it.

Lombardy poplar *(Polulus nigra* var. *italica).* In parts of Europe the Lombardy poplar lives to a great age, increasing in dignity and beauty. In much of the Middle-West it is short-lived. About the time it gets high enough to shade second-story windows it either dies outright or has dead

branches, particularly in the upper part of the tree where branches are difficult to remove though unpleasantly conspicuous. Heading the tree back repeatedly while it is young may delay the process but is no real cure.

Trees Which Grow Too Well

Pin oak *(Quercus palustris)* . . . Pin oaks do well here. They grow rapidly and make fine looking avenues of trees for at least forty years. But they keep on growing. The oldest plantings in the city (such as the avenue of them between the Quadrangle and the Chapel at Washington University) are already reaching the size where they become inconvenient neighbors. They were planted in the early nineteen hundreds. By the 1940's they were a dignified avenue and very much admired. particularly when the leaves turned color in the fall. Since about 1950 they have been slowly growing a little more unsightly year by year in spite of increasing care. Pin oaks are native to flood plains; on a hilltop campus the bigger they get the more difficult it is to supply all the water they need. Dead branches become increasingly evident. Yet the trees are already so large that keeping the dead wood out of the tops becomes difficult and expensive. They are already inconveniently large and they keep on getting larger and larger.

The problem of aging pin oaks is difficult because it is a new problem; there is no one to turn to for advice. It was not until the nineties that this oak began to be advocated for avenue planting. In the next few decades we shall probably learn just how much of a problem mature pin oaks can be and the best way of dealing with them when they become embarrassingly large in overcrowded areas.

Trees Which Plug Drains

Poplars and willows head this list. The Carolina poplar *(Populus canadensis)*, a lusty hybrid, is one of the very worst offenders. Its roots will find their own way into a drain with fabulous efficiency and produce a mass of branched rootlets which plug it completely. This is one of the reasons it is not commonly planted as it was about sixty years ago.

Trees With Disagreeable Odors

The male Ailanthus tree gives off an unpleasant and penetrating odor when in blossom. The plum-like fruits of the Ginkgo give off an unpleasant odor, particularly when they have been stepped on. It is increasingly possible to buy ginkgoes raised from cuttings taken from male trees. Unfortunately ginkgoes grow so slowly and are so long-lived that those who suffer inconvenience from the fruits seldom or never have even heard of the person who planted that tree. The trees of a community involve not only cooperation between people but cooperation between successive generations. To succeed, there must be wisdom and public-spiritedness and good luck.

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Proposed Nature Trail & Waterfront Development

(Continued from Page 35)

Thompson Expressway tube and maintaining water ways during construction for the passage of fish migrating from spawning grounds in the Arboretum lagoons to the lake.

It is fully intended to preserve as natural a character as possible in the new development. One certainly laments the complete demise of the wild area that formerly existed westward from Foster Island. Existing and proposed freeway construction and the present log dump have already nearly obliterated this unique and loved feature. It is planned to preserve, in its entirety, the wild marsh area now existing to the east of Foster Island.

As many will remember, a large part of the area that formed the Winkenwerder Memorial area was a former rubbish dump so there is precedent in the annuals of the Arboretum for a dumping operation. The Winkenwerder Memorial area contained the crab apple, mountain ash, quince and wild rose collection before the lake bridge interchange was constructed.

One must, of course, bear in mind that if this project proceeds it will be a long and unsightly process before we achieve a useable and attractive park like area. It should prove to be well worth the effort (and the mess), if in one's minds-eye, he can look past the construction period and see the end result—a quarter-mile long waterfront park and natural area, making pedestrian access from Montlake to the Arboretum possible, forming a new vantage point for observing crew races and boating activities in Union Bay and enabling enjoyment of a fine natural setting.

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